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A FEW SUGGESTIONS  
FOR THE  
PREVENTION OF FIRES.

Respectfully Submitted to the Insuring Public,  
AND TO AGENTS OF THE  
HOME INSURANCE COMPANY  
OF NEW YORK.

We take this opportunity to call your attention to the very interesting and instructive diagram (printed on the reverse side of our annual statement herewith enclosed), showing the ascertained causes of fires in the United States for the year 1884. Each segment or division of the circle represents the proportion of the whole number of fires occurring, assignable to each of the causes mentioned, and has no reference to the amount of loss either in money values or insurance.

A careful inspection of this diagram shows that aside from the one great cause of "incendiarism" and one or two natural causes, which are probably beyond cure, the larger proportion of the remaining causes may justly be classed as "*preventable*," and it is to this feature of the diagram we desire to cite your particular attention, feeling that our chief means of educating the public as to the methods of preventing fires is through the efforts of our agents in that direction; and with that end in view, we beg to submit the following suggestions, looking to the adoption of measures to secure a decrease in fires under the principal causes mentioned in the diagram.

**Incendiarism.**—This is a broad term, and includes many specific causes, which the loser may not care to divulge, and while its absolute

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cure might depend upon a moral revolution, we know that its proportions could be materially reduced if each agent would be careful to ascertain the just value of property offered for insurance, and then firmly decline to insure or permit other insurance in excess of three-fourths of such value. Firmness in such matters has saved many dollars in times past, for of all known incentives to arson *over-insurance* is undoubtedly the greatest; hence it is of vital importance that you, as our agent, should use the greatest care to investigate the character and standing of each applicant for insurance, in order to prevent offering any inducement to the insured to destroy his property. *We* cannot discover these weak points from an office examination, and therefore rely upon your judgment and discretion entirely in this respect.

**Defective Flues.**—All chimneys and flues should be built of good, sound brick, with double walls, if possible; be started from a solid foundation, and when completed be allowed to *settle firmly* before being enclosed within a wooden structure. Where this important point is overlooked, the mass of the chimney stack will settle and draw away from that part supported by the roof timbers, and thus leave a dangerous opening at an unfrequented spot. All classes of chimneys and flues should have each course of brick well and evenly bedded in good mortar, and each joint be as carefully pointed *inside* of the flue as if the work was being done on a pressed brick front. This class of finish is better and safer than the usual method of plastering the inside of a flue, as under the influence of the changes from heat to cold the plaster is liable to drop off and carry with it a share of the mortar, thus leaving a weak spot.

Flues not built from the ground should rest on good timber supports, and have not less than six courses of solid brick work at the base, well bedded and cross-tied in good mortar. Flues built in attics or on joists, with stove-pipe entering them vertically, are very dangerous, and their presence should condemn the risk at once. All timbers and woodwork exposed to chimneys and flues should be framed around them, leaving a two-inch air space. A propitious time for the enforcement of these suggestions is that offered when buildings are about to be erected, and if properly presented to the party at interest, will frequently be adopted. Try it, and when inspecting risks, either as new or old business, keep a sharp eye open to discover and remedy defects, as it is upon your judgment and care in such matters that we must in a very great measure rely for a proper selection of business.

THE NATIONAL FIRE INSURANCE COMPANY

NEW YORK



**Matches.**—The careless use of matches is of such general occurrence that frequent caution as to the danger from such cause cannot come amiss, however often reiterated. Metal receptacles should be insisted upon for both burned and unburned matches, and care be taken to keep them out of the reach of children and mice. In the hands of children they are dangerous from the ignorance and inexperience of the users, while with mice they seem to form a dainty addition to their regular diet, and are frequently found imbedded in their nests, with the phosphorus eaten from the ends. The disuse of the so-called "parlor match," a dangerous article, and the more general use of safety matches, such as can be ignited only on boxes prepared for the purpose, should be encouraged on all fitting occasions.

**Explosions of Lamps and Lamp Accidents.**—The majority of lamp explosions occur from the use of low grade oils, which contain a considerable quantity of naphtha or gasoline, and under the heat generated by the flame in the wick tube, a highly explosive gas is evolved, which, filling the space not occupied by the oil in the font, is liable to find its way to the flame, and upon ignition, cause an explosion. In case no means of exit presents itself, this gas, being subjected to continuous heating, may expand sufficiently to rupture the font itself, and on coming in contact with the flame, ignite with explosive rapidity.

This tendency to generate gas is greatly facilitated through the usual practice of turning low the flame of a lamp, resulting in an unusual heating of the metal dome over the wick, as well as its metallic connections, thus creating an excess of heat and more rapid volatilization of the oil, which engenders a tendency to explosion, even with the use of high grade oils. It should be borne in mind that, while the oil is low in a lamp, the process of capillary attraction through the wick is retarded, and as a result, the heated wick tube acts more rapidly in developing the gas—hence it is always unsafe to use a lamp when the oil is low in it.

Filling and trimming lamps by the aid of artificial light, or filling them while lighted, is extremely dangerous, not to say foolhardy, as is also the usual practice of extinguishing the flame by blowing down the chimney.

**Carelessness.**—The only remedy for this almost universal fault lies in the exercise of more care in regard to matters of seemingly



minor importance, from the neglect of which a vast number of fires daily occur—hence you should lose no opportunity to call attention to acts of carelessness coming under your observation, and where repeated cautions for improvement in this respect are not attended to, take the benefit of the doubt and get off the risk. Look for sawdust-spittoons, careless disposal of cigar and cigarette stumps, large accumulations of waste paper, sweepings, ashes, etc., and seek to have the proper remedies applied at once. Saving one loss by such action will amply repay continuous effort, and be duly appreciated by your principals.

**Spontaneous Combustion.**—Nearly all animal and vegetable oils, in combination with animal or vegetable fibre, will ignite spontaneously under favorable conditions, as will also lamp-black, charcoal and some kinds of bituminous coal. It will thus be seen that where oils are used the danger of fire is imminent, and the only safeguard is to *at once burn* all oily, greasy or paint rags, waste, sawdust, etc., when no longer needed for use. They should be kept in metal receptacles, and removed from the building every day, and never be left on floors, under benches, etc., over night. Painters' overalls should be hung up in such position as to permit a free circulation of air about them, as they are liable to ignite spontaneously if allowed to lie in heaps on the floors or benches.

Mineral or earth oils have not as yet developed this quality of spontaneous combustion, but a due sense of caution would suggest that they be treated with the same rigid care so essential to safety with oils known to possess this quality of self-ignition.

**Stoves and Stove-pipes.**—All woodwork or lath and plaster partitions within 18 inches of stoves, or within 10 inches of stove-pipes, should be protected with metal (tin or galvanized iron preferred), with an air space of one-half inch between the metal and the surface to be protected. Good brick platforms or sheets of metal should be used to protect the floor under each stove. All stove-pipes should be so erected that each joint will overlap *toward the stove*, be firmly riveted and well supported, frequently inspected and cleaned. Where stove-pipes are exposed to moisture they corrode rapidly, and a seemingly sound pipe is frequently found to be but a shell, upon the application of pressure from the fingers. *Test them.*

Where stove-pipes pass through floors or partitions, they should be provided with a double metal collar or tube, with an inch air space



between the plates, and be long enough to reach through the floor or partition, with flanges for support having numerous perforations communicating with the air space to admit of the escape of the heat. Stove-pipes passing into or through attics, or other unfrequented places, should be very often and carefully looked after.

Be careful to observe that wooden fire-boards are not used, and that all unused pipe-holes in chimneys and flues are properly stopped with metal. Do not forget to look at the flue in the *attic* for an open pipe-hole, particularly in country stores and farm-houses.

**Ashes** should always be kept in metal receptacles, *never in wood*, nor should they be allowed to accumulate in cellars, areas, etc., or be piled against buildings, out-houses, fences, or near rubbish, as a latent spark may find sufficient unconsumed material to feed upon, until reaching the outer air it ignites such combustible material as may be near it.

**Gas Jets and Open Lights.**—All flexible or swinging gas jets exposing woodwork or other inflammable material, should be made permanent and immovable, in a position to reduce the danger as far as practicable. Gas, and indeed *all* lights in show or bulk windows, should be suspended above the stock, and be provided with reflectors to diffuse the light. If this cannot be done, such lights should be enclosed within glass globes or wire netting, as should also gas jets near window curtains or other drapery. Lath and plaster or woodwork, not over 18 inches above gas jets, should be protected by a metal shield, so hung as to leave an air space of at least one-half inch above it.

**Explosions of Varnish, Volatile Oils, etc.**—The usual cause of explosion of these materials is from the ignition of the gas or vapor which arises from them at ordinary temperatures, hence the use of heat or open lights in rooms containing such material should be strictly prohibited. Clean, dry sand should be used to absorb the drippings and prevent occurrence of spontaneous combustion, which is liable to take place if the use of sawdust is persisted in for such purposes. The room should also be freely ventilated, in order to carry off such gases as may be evolved.



**Friction of Machinery.**—To avoid accidents from this cause high grade oils should be used, with self-oiling bearings. The shafting should be kept true and in line. All accumulations of dust, dirt, flyings, etc., should be frequently removed from bearings, to prevent undue friction, as the heat thus generated may remain latent for some hours after the machinery has ceased running and burst into flame when least expected; hence all important bearings should be frequently inspected during the first three hours *after shutting down*, in order to prevent disaster from this cause.

**Furnaces.**—To insure even ordinary safety in the use of furnaces, whether hot-air, hot-water, or steam, they should be placed on a solid foundation of brick or stone, with brick, stone, or metal not less than 36 inches wide in front of the ash-pit. The dome or top of the furnace and its smoke-pipe should not be less than 18 or 20 inches from unprotected woodwork, or lath and plaster; its side walls at least 12 inches and its hot-air flues not less than 8 or 10 inches from unprotected combustible material. Hot-air flues should be constructed of IX bright tin, and where they pass within wooden, or lath and plaster partitions, they should be *double*, with an air space of at least one-half inch between the inner and outer flues. All registers should be set in soap-stone frames not less than two inches wide, well bedded in plaster of Paris.

Register boxes passing through floors should be made of IX tin, with joist or floor timbers framed around them to leave a space of from 2 to 3½ inches, according to size of the register, the exposed woodwork to be covered with tin on all sides, extending from under the soap-stone frame to and under the ceiling below. The cold-air trunk or inlet should be of metal, having a wire net or grating at its outer opening, to prevent the entrance of inflammable matter. The use of wooden trunks for air inlets is extremely dangerous, as a reversal of the draft is liable to occur in some stages of the weather, in which case sparks might be carried into the trunk and a fire ensue. An accident of this kind is more liable to occur when, from forcing a fire in the furnace, its lining has become burned through, leaving holes through which live coals may fall into the surrounding air chamber and ignite any inflammable matter or dust which may have accumulated there. In addition to the above-mentioned trouble from a burned-out lining, fire may be readily communicated through the hot-air flues and registers under the conditions above mentioned. Under



any system of heating using registers, *at least one* of the registers should be continually kept open, either by removal of the valve or by securely wiring it so as to prevent its being closed. Be careful to examine the smoke-pipe for defects and the chimney for undue heat near wood-work.

**Oil Stoves.**—The points of danger from the use of these stoves are similar to those pointed out under the caption of lamp explosions, except that each of the faults mentioned are proportionately aggravated on account of the larger quantity of oil used and the greater heating of the metal surfaces from confining the flame. Under the best of conditions they are dangerous appliances, and their use should invariably be discouraged.

In case you find it absolutely necessary to permit the use of an oil stove, we rely upon you to fully inform the insured of the danger of using such an apparatus, and to instruct them as to such precautions as will tend to reduce the hazard of their presence in the risk. Stipulate for the use of high grade oil, and against the filling or trimming of the stove while lighted, or by the aid of artificial light.

**Steam Pipes.**—To avoid danger of fire from this source, steam pipes should never be allowed to come into contact with wood or other inflammable material. When passing through floors or other wood-work they should be provided with metal collars, having radial points or arms extending from the inside, so as to form an air space around the pipe. When hung on the side walls of an apartment, they should be supported on iron brackets, and be kept free from all accumulation of inflammable material. When laid near the floor, as in dry rooms, the floor should be covered with metal and the pipes be raised above it at least 3 inches, and be laid in sections, resting on pieces of piping of 1 or  $1\frac{1}{4}$  inches diameter, thus giving a free passage of air under the pipes at the points of contact with their supports; there should be sufficient space between each section to allow ready access for removal of waste, dust, etc. The safest and at the same time the most satisfactory method of heating by steam pipes, is to suspend them in iron stirrups at a point some two feet below the ceiling. When so arranged the heating capacity is not in the least diminished, while cleanliness is conserved, and the danger of fire from an accumulation of combustible material on the pipes is almost entirely eliminated.



The occurrence of fires from this cause is too well known to admit of doubt at the present time, and any tendency to carelessness in the arrangement or management of such apparatus should be severely criticised and amendment insisted upon at once.

We trust the above suggestions as to the prevention of fires will lead the public and our agents to recognize their importance and induce them to join with us in an effort to reduce the fearful loss of property from preventable causes, which is annually consuming millions of dollars of the national wealth.

NEW YORK, *January*, 1886.